

# LeClerc Creek C&H Allotment

## Noxious Weeds Report

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The LeClerc Creek Allotment is located in the southeast portion of the Sullivan Lake Ranger District. The allotment area includes Forest Service lands encompassed by the following watersheds; Middle Branch LeClerc, West Branch LeClerc, Fourth of July, Seco, Whiteman, Mineral, and Redman Creeks.

Many noxious weed species are present and established within the LeClerc Creek Allotment, therefore, only the prevention of weed spread and/or the compounding of weed problems that could result from the alternatives will be discussed. The project will not address the treatment of existing weed locations or the spread of weeds that could occur independently of the actions proposed in alternatives. Treatment of existing noxious weeds within the project area is addressed in the Colville National Forest Integrated Noxious Weed Treatment Environmental Assessment (1998) and supported by the Pacific Northwest Region Invasive Plant Program EIS and ROD (2005).

### Existing Condition

Noxious weeds are non-native plants that have been introduced and can be highly destructive, competitive and difficult to control. Noxious weeds can lead to degraded plant and animal habitat, displace native vegetation, increase erosion and some are toxic to animals.

The following table displays the noxious weed and invasive species known to exist within the project area and their control category as determined by the Washington State Noxious Weed Control Board.

SPECIES	CONTROL CATEGORY
Cheatgrass	Unclassified
Common Mullein	Unclassified
Common Bugloss	Class B Non-Designate
Dalmation Toadflax	Class B Non-Designate
Diffuse and Spotted Knapweed	Class B Non-Designate
Orange Hawkweed	Class B Non-Designate
Oxeye Daisy	Class B Non-Designate
Sulfur Cinquefoil	Class B Non-Designate
Yellow Hawkweed	Class B Non-Designate
Plumeless Thistle	Class B Non-Designate
Bull Thistle	Class C
Canada Thistle	Class C

Hounds tongue	Class C
St. Johnswort	Class C

The Washington State Noxious Weed Control Board has developed control categories to prioritize noxious weed species based on the seriousness of the threat they pose. Noxious weeds are classified into three major classes; Class A, Class B, and Class C.

Class A weeds are non-native species whose distribution in Washington State is still limited. Preventing new infestations and eradicating existing infestations are the highest priority. Eradication of all Class A plants is required by law. There are no Class A plant species known to exist within the LeClerc Creek Grazing Allotment.

Class B weeds are non-native species which are presently limited to portions of the state. These species are designated for control in regions where they are not yet widespread. Preventing new infestations in these areas is a high priority. In areas where Class B species are already abundant, control is decided at the County level with containment as a primary goal. For species listed as Class B Designate, control is required. For species listed as Class B Non-Designate, control is required in vehicle corridors and areas of limited distribution and encouraged in areas of large infestations.

Class C weeds are species that are already present and widespread across the state and control is encouraged in areas of large infestations, but not required.

The Colville National Forest has been engaged in noxious weed treatments in the project area since 1979. Currently, noxious weed treatments have been occurring under the direction of, and in compliance with, the Colville National Forest's 1998 Environmental Assessment for Integrated Noxious Weed Treatment and the 2005 Pacific Northwest Region Invasive Plant Program Environmental Impact Statement. The Colville National Forest utilizes an integrated pest management approach to controlling noxious weeds. Noxious weed treatments have primarily focused on herbicide application, but cultural, mechanical and biological control methods have also been employed.

The area contained within the LeClerc Creek Allotment was most recently treated for noxious weeds in 2013. Most noxious weed populations found within the LeClerc Creek area are associated with forest roads and trails. Roads and trails are areas of disturbance with bare soil which is susceptible to noxious weed establishment, and they act as vectors to spread noxious weeds by vehicular use.

Below is a synopsis of some of the vigorous noxious weeds within the project area.

### **Yellow Hawkweed**



Yellow hawkweed is a noxious weed that has been observed within the project area for 10 to 15 years. Yellow hawkweed is very aggressive and seems to easily out-compete desirable vegetation and eventually can displace all grasses in a site if there is adequate sunlight. Yellow hawkweed is a perennial and spreads by seeds, stolons and rhizomes. It flowers from mid-May to July and usually sets seed by August. Yellow hawkweed thrives in disturbed areas such as roadsides, gravel pits and pastures. It can also invade meadows and forested areas and is well-adapted to life at higher elevations. Hawkweeds are usually found in sunny areas, though it is somewhat shade tolerant. Yellow hawkweed prefers gravely well-drained soils and can be found along roadsides and in forest openings, meadows and disturbed sites.

### **Orange Hawkweed**



Orange Hawkweed is very similar to yellow hawkweed, but orange hawkweed tends to prefer moister soils and appears to be more shade tolerant than yellow hawkweed.

### **Houndstongue**



Houndstongue is a biennial plant growing 1 to 4 feet tall with prickly seeds covered in Velcro-like hooks that are easily attached to and transported on livestock, wildlife, clothing, shoelaces, pets, etc. Houndstongue is known to be toxic to livestock, but they are unlikely to consume it in a rangeland setting as there are far more desirable plants available. Many of the noxious weeds found within the planning area are confined to areas of current and past soil disturbance such as roadsides, skid trails and landings, but houndstongue can be found in many places due to its dispersal method. A biological agent known as *Mogulones cruciger* (weevil) was released in British Columbia in 1997, and preliminary results indicate the insect is having a significant impact on houndstongue. This biological agent is not approved for use or distribution in the United States, but it is moving its way south from Canada and has been seen as far south as Curlew, Washington. It is possible that the *Mogulones cruciger* weevil exists within the LeClerc Creek Allotment.

**Plumeless Thistle**

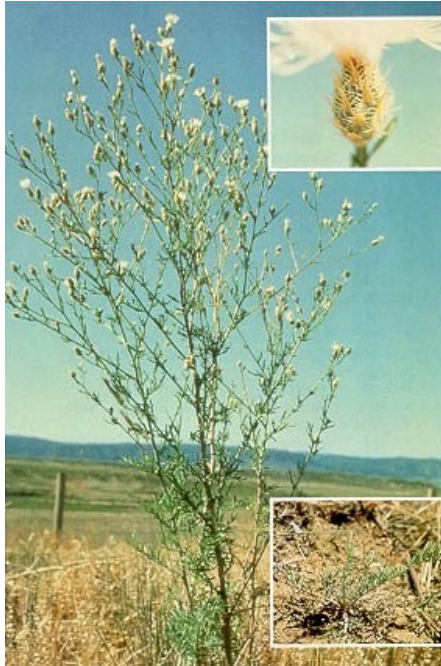


**Musk Thistle**



Plumeless thistle and musk thistle are similar in that they are both invasive biennial thistles introduced from Europe. Local conditions allow these thistles to grow to a height of eight feet tall (Stevens County Noxious Weed Control Board, 2012). These thistles prefer mesic sites and are most commonly found in disturbed areas such as pastures, roadsides, waste areas, and ditch banks (Wisconsin DNR, 2012). These thistles have been observed in the boulder grazing Complex since 1997. Instances have been observed where these two species appear to have hybridized (Stevens County Noxious Weed Control Board, 2012). There are biological control agents known to be feeding on plant populations within the project area.

## **Diffuse Knapweed**



Diffuse knapweed is a biennial to short-lived perennial plant that has been known to exist in Ferry County for many decades and has been observed near the project area since the 1950s. This plant has been found to establish in areas of disturbance such as roadsides, landings and skid trails. Diffuse knapweed is fairly common within the planning area and prefers dry sites as it cannot tolerate wet conditions. Several biological control agents have been found to exist in the project area to control populations of diffuse knapweed.

## **Spotted Knapweed**





Spotted knapweed is a biennial to short-lived perennial plant that is usually found in disturbed areas, such as roadsides, but it may invade adjacent areas that are relatively undisturbed. This plant is adapted to well-drained, light to coarse-textured soils. It is intolerant to dense shade and tends to inhabit moister habitats than diffuse knapweed, though it can also be found in very dry sites. Several biological control agents have been found to exist in the project area to control populations of spotted knapweed.

Other invasive plants previously listed as occurring within the Leclerc Creek Allotment, such as Canada Thistle, bull thistle, common mullein, st. johnswort, oxeye daisy and cheatgrass are species that are common within and outside the project. Most of these species fluctuate in abundance and size of infestation. Disturbance associated with roads is where most of these species establish, but over time they do not persist on the landscape.

The existing dense forest canopy on undisturbed timber sites provides a natural deterrent to noxious weed invasion. Most of the noxious weeds identified in the previous table are not generally shade tolerant, although orange hawkweed can be found growing in shaded environments. Where there is an existing understory, and especially where it receives little disruption, vigorous regrowth of forest vegetation can deter noxious weed invasion. This is especially true of sites with greater than 25% pinegrass or with a dense shrub understory.

Currently the Colville National Forest uses an integrated approach in managing noxious weeds which includes prevention measures, inventory, treatment and monitoring. Integrated pest management is the coordinated use of multiple tactics to assure stable ecosystem function and maintain pest damage below economic levels, while minimizing hazards to human, animals, plants and the environment (U.S. Congress Office of Technology Assessment, 1993). The Forest uses a variety of treatment methods to control noxious weeds and treatment methods are determined by site-specific attributes found at treatment locations. The different treatment methods employed by the Colville National Forest include:

1. Manual Removal – Hand pulling and digging

2. Mechanical Treatment – Mowing
3. Release of Biological Control Agents – Host-specific insect parasites
4. Chemical – Application of herbicide

Hand pulling or digging of noxious weeds is used where noxious weed populations are relatively small and isolated. This is an effective way to treat noxious weeds that are newly established in an area. Hand pulling or digging, along with mechanical and chemical control methods, are most effective if conducted prior to the plants producing seed.

The Forest has a variety of locations where biological control agents are employed to control noxious weeds. There are effective biological control agents on the Colville National Forest for knapweed, St. Johnswort, Dalmatian toadflax, musk thistle and plumeless thistle. Most other state listed noxious weed species do not have approved biological control agents that are available for release. Biological agents that control noxious weeds have been observed on host plants within the project area. While biological agents reduce populations, eradication of the weed populations generally does not occur due to the predator/prey relationship.

The Forest treats the most acres of noxious weed infestations by using a select number of approved herbicides. Most of the acres treated are accomplished by the responsible application of herbicides within existing road corridors, since this is the location where most noxious weeds first become established. Herbicide application methods are determined by the size and location of the noxious weed infestation. Generally, smaller infestations, and/or application in sensitive areas (such as near water or sensitive plants) is accomplished with spot spraying from a backpack sprayer or the hand wand of a truck or ATV mounted sprayer. Larger infestations are generally treated by using a truck mounted, articulated boom-type sprayer. Though the Forest does broadcast spray noxious weed infested areas, application is limited to areas that have targeted noxious weeds present. Therefore, the Forest does not apply herbicides in areas where noxious weeds are not observed or present.

The Forest is required to monitor at least 50% of the area where noxious weeds have been treated using herbicides. It is common for the Forest to significantly exceed this requirement, as nearly all of the areas that are treated under service contracts are inspected and monitored for effectiveness and compliance with the contract terms.

## Existing Condition Summary

Noxious weeds within the LeClerc Creek Allotment have been present for many years and treatment is continuous and on-going. Some of the first noxious weeds to establish in the area were common mullein, St. Johnswort, and diffuse knapweed. Noxious weed treatments have been occurring across the Colville National Forest since about 1979.

Noxious weed spread can be attributed to there being nearby populations that will provide a seed source and the amount of roads open to vehicles (Masters and Sheley, 2001). The roads within



the LeClerc Creek area have the potential to act as conduits for noxious weeds and provide habitat for their establishment. Ownership of the roads in the LeClerc Creek area is a combination of private, county and Forest Service; therefore, there is the potential for noxious weeds to be transported within the area across jurisdictions besides Forest Service.

Existing dense forest canopy on undisturbed timbered sites provide a natural deterrent to noxious weed invasion. The noxious weeds identified previously are not generally shade tolerant, although orange hawkweed can be found to inhabit areas with moderate shading. Areas of soil disturbance could create unoccupied niches for noxious weeds and invasive species to establish given that potential seed sources exist within the project area.

## Issues to be Addressed

1. Concern that authorized livestock grazing within the LeClerc Creek Allotment will allow for the establishment and spread of invasive plants.
2. Concern that spread of noxious weeds will impact biodiversity and replace desirable vegetation with non-native invasive plants and/or noxious weeds.

## Design Elements

Element	Issues	Areas	Implementation
Seeding of approved desirable species with weed free seed in areas of soil disturbance related to construction.	2	Cattleguard installation sites and hardened water crossing sites.	Forest Service force account crews.
Use of Noxious Weed Free fill and barrow material	2	Cattleguard installation sites and hardened water crossing sites.	Forest Service force account crews.
Clean all motorized equipment that will be operating outside of a road prism	2	Hardened water crossing sites.	Forest Service force account crews.

## Desired Conditions

The desired future condition is based on assumptions, allocations and direction given in the Colville National Forest Land and Resource Management Plan. This is not a direction statement, but rather conclusions drawn as to the changes that would occur as a result of management activities over the next 10 years. The following desired future condition is an excerpt from Chapter 4, page 64 of the plan.

“The occurrence and spread of noxious weeds will be reduced as a result of integrated pest management.”

## Management Framework

Direction provided in the Colville National Forest Land and Resource Management Plan is that “emphasis will be given to the control and reduction of noxious weed infestations”. The Forest has also developed the Seeding and Planting Guide for the Colville National Forest, which addresses the need to seed vegetation such as grasses and legumes on highly disturbed sites and provides guidance to match sites with appropriate plant species.

Direction is also provided by the Colville National Forest Weed Prevention Guidelines document, which was developed to minimize the introduction of noxious weeds, minimize conditions that favor the establishment of noxious weeds and minimize conditions that favor the spread of noxious weeds. The following are eight major objectives of the Colville National Forest Weed Prevention Guidelines:

1. Education: Ensure public and employee knowledge of noxious weeds to help reduce both the spread rate of existing weeds and the risk of infestation by new noxious weeds.
2. Project Need: Weigh the need of the proposed project against the risk of weed infestation.
3. Minimize Transportation of Weed Seed: Reduce the spread of existing weeds across the Forest and the risk of introducing new weed species to project sites and other areas of the Forest.
4. Incorporate Weed Prevention Measures into project planning and design, and special use permit administration: Ensure that the risks of weed introduction and/or spread, and the mitigation required to minimize that risk are properly considered before ground disturbing activities begin.
5. Pre-activity, Inventory and Analysis: Minimize the spread of existing weeds into new project areas.
6. Minimize ground disturbance and the exposure of mineral soil during project activities: Reduce the potential for weeds to become established on new sites and the need to conduct re-vegetation activities.
7. Re-vegetate disturbed areas: Re-establish desirable vegetation of exposed mineral soil due to project activity and unplanned events such as fire, flood, or other disturbances to minimize the introduction and/or spread of noxious weeds.
8. Monitor: Conduct project follow-up and review to determine success of weed treatments and re-vegetation efforts to detect new weed sites requiring treatment and make corrections as necessary. Monitoring is a part of every project and as such, needs to be covered in NEPA discussions, and planned for as a part of implementation.

The Preventing and Managing Invasive Plants Environmental Impact Statement (EIS) and Record of Decision (October 11, 2005) provides for seven new standards for prevention of noxious weeds. There are three that apply to this project which are:

- 1. Prevention of invasive plant introduction, establishment and spread will be addressed in ....grazing allotment management plans; vegetation management plans and other land management assessments.
- 2. Actions conducted or authorized by written permit by the Forest Service that will operate outside the limits of the road prism ....require the cleaning of all heavy equipment prior to entering National Forest System Lands.
- 6. Use available administrative mechanisms to incorporate invasive plant prevention practices into rangeland management.

The following are the five major objectives of the 2005 EIS and Record of Decision.

Goal 1 – Protect ecosystems from the impacts of invasive plants through an integrated approach that emphasizes prevention, early detection and early treatment. All employees and users of the National Forest recognize that they play an important role in preventing and detecting invasive plants.

Goal 2 – Minimize the creation of conditions that favor invasive plant introduction, establishment and spread during land management actions and land use activities. Continually review and adjust land management practices to help reduce the creation of conditions that favor invasive plant communities.

Goal 3 – Protect the health of people who work, visit or live in near the National Forest, while effectively treating invasive plants. Identify, avoid or mitigate potential human health effects from invasive plants and treatments.

Goal 4 – Implement invasive plant treatment strategies that protect sensitive ecosystem components, and maintain biological diversity and function within ecosystems. Reduce loss or degradation of native habitat from invasive plants while minimizing effects from treatment projects.

Goal 5 – Expand collaborative efforts between the Forest Service, our partners and the public who share learning experiences regarding the prevention and control of invasive plants and the protection and restoration of native plant communities.

## Effects

### Alternative A- Current Management

Livestock grazing has the potential to influence weed establishment and spread through vegetation consumption, seed transport, and soil disturbance. Livestock grazing can affect the ability of native plant communities to out-compete and prevent invasive species from becoming

established and spreading. Invasive plants can compete with and out-compete native species resulting in a decline in native species diversity and affect plant community condition and succession. Ground disturbing activities may increase the potential for invasive plants to become established, however many invasive species can become established without disturbance.

Areas where livestock are concentrated can result in soil disturbance that may lead to the establishment and spread of invasive plants. These areas, such as corrals, and are considered high risk areas for soil disturbance. The establishment of invasive plants as a direct result of livestock at range improvements has not been a common occurrence on the LeClerc Creek Allotment.

This alternative has prescribed utilization standards, conservative stocking rates, and a deferred grazing system that, when combined, act to reduce negative effects to plant community health. This in turn would reduce the risk of the establishment and spread of invasive species.

The most significant populations of noxious weeds within the project area are associated with roads and human activities such as logging, camping, driving and motorized recreation. Livestock are a relatively minor vector in spreading most of the noxious weeds found to exist within the project area therefore continued livestock grazing is likely to contribute very little to the spread or establishment of noxious weeds as a whole.

The on-going presence of livestock within the LeClerc Creek Allotment may continue to spread houndstongue due to its seeds becoming attached to livestock hair. As livestock pass through areas with houndstongue plants, ripe seeds become caught in the animal's hair and get transported to other areas. The risk is that seeds could detach and be deposited in areas that do not have houndstongue, thereby creating new infestations. Since livestock are but one of the means for this plant to disperse seed, the risk of exposing new areas to houndstongue infestation with the presence of livestock is marginal.

## Alternative B- No Grazing

If grazing were no longer permitted on the LeClerc Creek Allotment, there would likely be little to no noticeable difference in spread of noxious weeds. This is because the known noxious weed species within the project area are spread by a wide variety of vectors including wind, birds, gravity, vehicles, humans, animals and wildlife. Vehicles seem to be the primary vector of noxious weed spread by transporting noxious weed reproductive parts to non-infested areas. Elimination of livestock is unlikely to have an appreciable effect on rate or distance of spread since vehicle use is likely to continue, if not increase.

The exception to this is the spread of houndstongue, which may attach to hair or fur and be transported to new locations. Livestock are not the sole vector for seed dispersal and therefore the seeds from these plants would continue to be spread by other means even in the absence of livestock grazing. Because other vectors will still be operating in the project area, the rate of houndstongue spread is likely to continue as is, or change only slightly.

Yellow hawkweed, orange hawkweed, Canada thistle, bull thistle, and plumeless thistle are all spread by wind blown seed. In addition to wind-blown seed dispersion, both yellow and orange hawkweed also spread by rhizomatous tillers (roots). These noxious weeds would continue to spread in the absence of livestock grazing.

Diffuse knapweed, spotted knapweed, common mullein, oxeye daisy and St. John's wort all produce small seeds that are generally spread by wildlife, water, gravity, or in soil and seeds clinging to a vector. These noxious weeds would also continue to spread in the absence of livestock grazing.

Small denuded areas resulting from concentrated livestock use, such as near salting areas, corrals and livestock trails, would eventually have vegetation establish in the absence of livestock grazing. These areas, once vegetated, would be less susceptible to noxious weed invasion assuming that they are revegetated with desirable non-invasive species. These currently denuded areas represent a small area within the LeClerc Creek Allotment; therefore the risk they currently pose is likely inconsequential.

Often times the grazing permittees are the first people to observe and identify new noxious weed infestations within their allotments since they are frequently present within the allotment checking on and providing for their livestock. The Forest Service has also made noxious weed identification material available to permittees. Without the grazing permittee's presence and knowledge, some new noxious weed infestations would likely go undiscovered by district personnel.

## Alternative C

Livestock grazing has the potential to influence weed establishment and spread through vegetation consumption, seed transport, and soil disturbance. Livestock grazing can affect the ability of native plant communities to out-compete and prevent invasive species from becoming established and spreading. Invasive plants can compete with and out-compete native species resulting in a decline in native species diversity and affect plant community condition and succession. Ground disturbing activities may increase the potential for invasive plants to become established, however many invasive species can become established without disturbance.

Areas where livestock are concentrated can result in soil disturbance that may lead to the establishment and spread of invasive plants. These areas include corrals and water developments and are considered high risk areas for soil disturbance. The establishment of invasive plants as a direct result of livestock at range improvements has not been a common occurrence on the LeClerc Creek Allotment.

This alternative has prescribed utilization standards, conservative stocking rates, and a deferred grazing system that, when combined, act to reduce negative effects to plant community health. This in turn would reduce the risk of the establishment and spread of invasive species.

The most significant populations of noxious weeds within the project area are associated with roads and human activities such as logging, camping, driving and motorized recreation. Livestock are a relatively minor vector in spreading most of the noxious weeds found to exist within the project area therefore continued livestock grazing is likely to contribute very little to the spread or establishment of noxious weeds as a whole.

The on-going presence of livestock within the LeClerc Creek Allotment may continue to spread houndstongue due to its seeds becoming attached to livestock hair. As livestock pass through areas with houndstongue plants, ripe seeds become caught in the animal's hair and get transported to other areas. The risk is that seeds could detach and be deposited in areas that do not have houndstongue, thereby creating new infestations. Since livestock are but one of the means for this plant to disperse seed, the risk of exposing new areas to houndstongue infestation with the presence of livestock is marginal.

The proposed construction of fences and water developments would result in very small isolated areas of soil disturbance where noxious weeds could establish. Potential areas of noxious weed invasion associated with fencing include disturbed soils around brace posts and cattle guard installation. Potential areas of noxious weed invasion associated with water development construction and use would be denuded areas around water troughs and disturbed soils where pipelines would be buried. Because of the small size of the disturbed areas, the chances of weeds becoming established is minimal. To reduce the likelihood of new populations establishing disturbed areas may be revegetated with desirable species in one, but possibly two growing seasons. These areas are routinely monitored both for maintenance needs and noxious weed infestations by permittees and Forest Service personnel.

In areas where construction-type equipment would be used for project implementation, such as the proposed cattleguard installation and hardened crossing construction, there is a risk of noxious weed seeds and reproductive parts being introduced. The potential for noxious weeds becoming established at the above mentioned sites would be effectively mitigated by requiring the washing or cleaning of equipment prior to entering the National Forest and using only aggregate and fill from sites identified to be free of noxious weeds and noxious weed seeds.

Overall, effects of livestock grazing as they relate to noxious weed establishment and spread should be lessened with Alternative C when compared to Alternative A. This is due to improved management and distribution of cattle through more effective barriers to livestock drift, water developments, and adaptive management, among others. Although there is a short-term risk of new populations establishing at newly constructed range improvements as described above, monitoring and applying Forest Best Management Practices (BMP's) will greatly reduce the risk of new populations of invasive plants becoming established at these sites.

## Alternative D

Alternative D is not anticipated to have any direct, indirect or cumulative effects vastly different from what has been described for Alternative C.



## CUMULATIVE EFFECTS

There has been an increasing trend in the introduction and spread of noxious weeds on the LeClerc Creek Allotment since the 1950s starting with St. John's wort followed by diffuse knapweed. During the 1960s, 1970s and 1980s, a major increase in road construction and timber harvest created opportunity for the establishment of diffuse knapweed and many other newly introduced noxious weeds during this time. Livestock numbers were stable or in a declining trend during that same time period. With increased disturbance and access, the spread of noxious weeds increased. In the 1980s, an increase in the amount and species of noxious weeds generally went unabated except for some minor mechanical treatments until the early 1990s.

Due to the amount of roads that exist within the LeClerc Creek Allotment and the maintenance and use of these roads, noxious weed populations are expected to persist and may spread in the future regardless of livestock grazing. Soil disturbance, such as that found to be associated with roads and motorized trails, appears to be critically important in the beginning of the invasion process since it creates openings for noxious weeds to occupy (Masters and Sheley, 2001).

Fuel treatments, timber management and road construction and maintenance, all of which produce areas of soil disturbance, are likely to continue into the future. These areas of new disturbance are likely to remain the locations that are most susceptible to noxious weed invasion despite following the Colville National Forest Weed Prevention Guidelines because of exposed mineral soil and the presence of vectors that spread noxious weeds.

Currently, livestock are a small contributor to noxious weed spread in the LeClerc Creek Allotment when compared to motorized recreation and driving, which appear to be the main vectors for noxious weed spread based on the majority of noxious weed populations being associated with roads and user-created trails in the area.

Within the LeClerc Creek Allotment, the grazing permittee has the ability to travel level 1 roads and trails with motorized vehicles to access some range improvements and complete livestock management practices such as salting and livestock inspections or gathering. This motorized access has the potential to introduce invasive plant reproductive parts to these areas. Permittee use of these routes is infrequent and unlikely to create bare soil conditions, therefore the risk of invasive plant establishment is low since vegetative cover would discourage invasive plant establishment.

Driving for pleasure, motorized recreation, hunting, hiking, firewood gathering, dispersed recreation and camping are all expected to continue independent of the proposed action, therefore noxious weeds would continue to be spread by these sources.

There have been past wildfires, both small and large, that have burnt within the LeClerc Creek Allotment that have altered the appearance of the landscape. The risk of wildfires burning in the project area exists into the future. Wildfire has the potential to create bare soil conditions and therefore there would be opportunity for invasive plant establishment and spread following a wildfire event. The timing of livestock grazing return to all or portions of the LeClerc Creek Allotment post-wildfire would be determined by and documented in fire rehabilitation plans.

Timber harvest has been experienced throughout the history of this allotment is expected to continue in the future. Projects such as the Hanlon Stewardship create disturbance of the existing vegetation and soil. This project, which is currently ongoing, may increase the risk of invasive plant establishment and spread. This risk is likely to be minimal due to the pre-implementation and post-implementation noxious weed treatments that would occur, as well as the re-vegetation requirements for the project. Timber harvest projects on private lands within and adjacent to the LeClerc Creek Allotment also have the potential to have new populations of noxious weeds establish, which could then be spread into the project area.

Forest road 1935, also known as the Middle Branch LeClerc road, was recently relocated out of the riparian zone of Middle Branch LeClerc Creek. The old road bed was obliterated and seeded with desirable native vegetation to discourage the establishment of noxious weeds. However, there is still a possibility that noxious weeds may become established on the old road prism. Monitoring of this area by Forest Service personnel would aid in identifying any new noxious weeds populations that establish so that they may be treated to prevent them from spreading or persisting on the site.

In spite of present and on-going noxious weed treatments in the area, which are implemented independent of this Environmental Impact Statement and the proposed alternatives, populations of noxious weeds are expected to slightly increase and evolve based on trends that have been experienced to date. Effectiveness of noxious weed treatments is monitored and results have shown that the benefits of treatment can be observed for 2 to 5 years following a herbicide application event depending on the herbicide used and the type of soil present.

## Irreversible or Irretrievable Effects

None of the proposals for the LeClerc Creek Grazing EIS would produce or equate to any irreversible or irretrievable effects to invasive plants within or adjacent to the project area because there would be minimal soil disturbance as a result of the proposed activities.

## Monitoring

1. Sources that are to be used for aggregate and barrow material would be monitored by Forest range management/invasive plants personnel to ensure that they are free of noxious weed seed, or have been treated.
2. Periodic monitoring and inventory of invasive plants would occur within the area of the LeClerc Creek Allotment.
3. Areas around and adjacent to range improvement projects would be monitored for the presence of invasive plants while range improvement project inventories are conducted.

## Effects Summary

Continuing livestock grazing and implementation of Alternatives C or D would have little effect on the spread of noxious weeds within the LeClerc Creek Allotment since most noxious weed species found to exist are not transported primarily by livestock. Of all of the noxious weeds found to exist within the project area, livestock are only known to affect the spread of houndstongue.

Noxious weeds have existed in the project area for a long time and motor vehicles and motorize access seems to be the main factors that influence their spread.

Alternatives C and D would comply with the *Colville National Forest Weed Prevention Guidelines*, the *Colville National Forest Seeding and Planting Guide*, the *Pacific Northwest Invasive Plants Program Final Environmental Impact Statement and Record of Decision*, and the *Colville National Forest Integrated Noxious Weed Treatment Environmental Assessment*. The overall risk of these alternatives increasing noxious weed distribution or creating long lasting noxious weeds impacts is low.

## References

Colville National Forest Environmental Assessment (1998) Integrated Noxious Weed Treatment.

Colville National Forest Weed Prevention Guidelines (1999)

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